# 7. COMMERCIAL AND RECREATIONAL FISHERIES

This chapter addresses Factor 7 of the 10 factors used to determine unreasonable degradation. This factor requires the assessment of any impacts to existing or potential recreational or commercial fisheries, including finfishing and shellfishing. This chapter characterizes the important commercial and recreational fisheries of the eastern Gulf of Mexico by measure of value and volume.

## 7.1 Overview

In 1998 the Gulf of Mexico region was second only to the Pacific coast region for pounds of commercial fish landed (17% of total U.S. landings in 1998), and also was second to the Pacific coast region for the value of the commercial catch landed (23% of the U.S. catch in 1998; NMFS, 1999).

In Alabama, shellfish such as shrimp, crabs, and oysters dominate commercial catches. Brown, white, pink, and northern shrimp are the most valuable catch, bringing in a total of $31 million in revenue in 1996 (NMFS, 1998). Blue crab and eastern oyster were the second and third most valuable fisheries. Important commercial finfish caught in Alabama in 1996 include mullet, Atlantic menhaden, sheepshead, and snapper (NMFS, 1998).

In Florida, invertebrates such as shrimp, lobster and crab were the dominant commercial species in 1996, with a combined total value of over $107 million. Shrimp are the singly most valuable species caught on the Gulf coast of Florida. Important commercial finfish on the Gulf coast of Florida include grouper, snapper, swordfish, shark, ladyfish, and tuna (NMFS, 1998).

In 1996, the most valuable commercial fisheries in Mississippi were brown, white, and pink shrimp with a combined value of $20.4 million. The most valuable commercial finfish was menhaden. Other commercial finfish include mullet, snapper, flounder, and seatrout (NMFS, 1998).

Recreational fishing is very popular in the Gulf of Mexico. In 1996, in the Gulf (excluding Texas) a total of 16.3 million trips were made by 1.8 million participants. Table 7-1 presents a summary of the

| Year | Participants | Trips | Participants | Trips | Participants | Trips | Total Eastern Gulf Participants | Trips |
|---|---|---|---|---|---|---|---|---|
| | (,000) | (,000) | (,000) | (,000) | (,000) | (,000) | (,000) | (,000) |
| | | | | | | | | 15,528 |
| | | | | | | | | 14,727 |
| | | | | | | | | 15,018 |
| | | | | | | | | 14,169 |
| | | | | | | | | 13,539 |

**Table 7-1. Number of Recreational Fishing Participants and Trips on the Eastern Gulf**

Source: NMFS, 1997.

marine recreational fishing trips and participants in Alabama, Florida, and Mississippi for the past five years. The following are numbers (as opposed to weight or values) of fish recreationally caught in the eastern Gulf of Mexico for 1996 (NMFS, 1998).

In Alabama, the largest recreational fishery in 1996 was sand seatrout with 863,295 fish caught. The rest of the top five marine recreational fisheries in 1996 were red snapper, saltwater catfish, kingfish, and pinfish. In Florida, spotted seatrout was the largest recreational fishery in 1996 with 2.98 million fish caught. The remainder of the top five recreational fisheries in Florida were pinfish, gray snapper, saltwater catfish, and red drum. In Mississippi, the largest recreational fishery in 1996 was sand seatrout, with 227,829 landed. The rest of the top five recreational fisheries in Mississippi were red snapper, spotted seatrout, red drum, and Spanish mackerel.

## 7.2 Shellfisheries

### 7.2.1 Brown, White, and Pink Shrimp

Brown, white, and pink shrimp make up the most valuable commercial fishery of the U.S. (Muncy, 1984a). These shrimp are estuarine-dependent, demersal species found throughout the Gulf.

Brown shrimp have a maximum density along the Texas-Louisiana coast. They are found from the shore to depths of 110 meters, but are most common on mud or sandy-mud substrates between 30 and 55 meters deep (NOAA, 1985). They are omnivorous, with anything from detritus to small invertebrates and fish being found in the stomach (Larson et al., 1989). Brown shrimp represented 34% of the eastern Gulf of Mexico shrimp fishery in 1996 (NMFS, 1998). Brown shrimp fishery activities are concentrated inside the 55-meter contour, but extend to at least the 90-meter contour (NOAA, 1985). Brown shrimp accounted for the largest weight and value of shrimp caught in 1996 in Alabama and Mississippi, valued at $19 million in Alabama and $14 million in Mississippi.

White shrimp inhabit the Gulf of Mexico coast from Apalachee Bay, Florida to Ciudad, Mexico, with a center of abundance in Louisiana waters. They are plentiful in waters where the continental shelf is broad and shallow, generally from the shore to 65-meter water depths, and rarely occur at greater depths (NOAA, 1985). White shrimp also are omnivorous. Although pink shrimp constitute the largest portion of the eastern Gulf shrimp fishery, white shrimp are highly valued for human food. Historically, in Mississippi the market value of shrimp as bait has been three times more than its value as human food (Muncy, 1984a). The white shrimp fishery was the second most valuable of the shrimp fisheries in 1996 in Mississippi, valued at approximately $6.1 million. In Florida and Alabama, the white shrimp fishery was valued at $1.7 million and $4.2 million, respectively (NMFS, 1998).

Pink shrimp are most abundant on the southwest coast of Florida. In 1996, the Florida pink shrimp fishery was valued at $47 million, representing 46% of the eastern Gulf shrimp fishery (NMFS, 1998). The shrimp are omnivorous and inhabit broad shallow areas on the continental shelf from the shore to 65-meter water depths. Adults prefer firm substrate such as sand, shell sand, or coral; juveniles prefer

shallow estuarine areas and seagrass beds. Pink shrimp also contribute to the commercial shrimp fishery in Alabama ($7.6 million) and Mississippi ($0.29 million; NMFS, 1998).

### 7.2.2 American Oyster

The American oyster is a bivalve mollusk found throughout the Gulf of Mexico in estuaries, shallow nearshore waters, and on reefs located near river mouths (NOAA, 1985). Most concentrations are found in depths of 10 meters or less. The American oyster supports an important commercial fishery in the Gulf of Mexico ($45 million). However, the eastern Gulf represents only 12% of the Gulf total in 1996 (NMFS, 1998). The species also is harvested recreationally.

### 7.2.3 Blue Crab

The blue crab is a demersal decapod crustacean found throughout the Gulf of Mexico, from Florida to the Yucatan Peninsula. It inhabits estuaries and nearshore waters to depths of about 90 meters, but is most common in water depths of 35 meters or less. The species generally favors muddy and sandy bottoms in shallow waters with some vegetation (NOAA, 1985). The commercial blue crab fishery has become increasingly important and is one of the largest in volume in the Gulf of Mexico, with 63 million pounds harvested in 1996 (NMFS, 1998). Louisiana is the largest commercial producer of blue crabs in the Gulf of Mexico, although there are major fishing grounds on the coasts of Mississippi, Alabama, and Florida (NOAA, 1985). In 1996, commercial blue crab landings were valued at $1.8 million in Alabama, $8.4 million in Florida, and $0.27 million in Mississippi (NMFS, 1998). Historically, Florida along with Louisiana has contributed most of the commercial blue crab fishery of the Gulf (Perry and McIlwain, 1986). There also is a substantial recreational fishery for blue crab in the Gulf. The sport fishery is thought to contribute significantly to the total catch of blue crabs of the U.S., although estimates of recreational fishing vary widely.

### 7.2.4 Stone Crab

The stone crab is a carnivorous decapod crustacean. Juveniles live in estuaries on shell and rocky substrates, while mature stone crabs live in deep water (approximately 54 m), often burrowing in soft substrate or living among vegetation, rock crevices, or wrecks. Stone crabs are found throughout the Gulf of Mexico, but are abundant in southwest Florida where they are a major commercial shellfishery; they also are recreationally fished (NOAA, 1985). The fishery is unique in that crabs are trapped, one claw is removed, and the crabs are released. As a commercial fishery in western Florida, stone crabs were third in value to only pink shrimp and Caribbean spiny lobsters in 1996 (NMFS, 1998).

### 7.2.5 Spiny Lobster

The spiny lobster is a omnivorous decapod crustacean found throughout the Gulf of Mexico. They live in crevices and dens in water as deep as 80 meters. They are an important commercial trap fishery in southwest Florida and are caught recreationally throughout the Gulf (NOAA, 1985). The commercial

spiny lobster fishery in Florida was valued at $27 million in 1996 (NMFS, 1998) making it the second most valuable shellfishery in western Florida.

## 7.3 Finfisheries

### 7.3.1 Red Grouper

The red grouper is a demersal fish, favoring sublittoral habitats with rock outcroppings, reefs, and wrecks. It occurs at depths from 3 meters to about 200 meters, preferring 30 to 120 meter depths (NOAA, 1985). Juveniles favor grass beds, rock formations, and shallow reef areas as nursery areas. The major commercial fisheries in the Gulf are off Louisiana, throughout the eastern Gulf, and off the Yucatan peninsula. The red grouper fishery in Florida was valued at $11.4 million in 1996 (NMFS, 1998).

### 7.3.2 Red Snapper

The red snapper is a demersal fish found throughout the Gulf of Mexico, with centers of abundance in U.S. waters in the southern Gulf and west Florida, where the principal fishing grounds are located (Moran, 1988). The species is found over sandy and rocky bottoms, around reefs and underwater objects at shallow depths from the shoreline to 100 meters (Moran, 1988). Juveniles inhabit shallow nearshore and estuarine waters and are most abundant over sand or mud bottoms (NOAA, 1985). The species is a popular sport fish, primarily in the northern Gulf and Florida. They are called snappers because they will snap at a bare hook (Moran, 1988). In 1996, the red snapper was the fifth most common sport fish in the eastern Gulf (NMFS, 1998). Commercially, the red snapper fishery was valued at $0.085 million in Alabama, $0.48 million in Florida, and $0.43 million in Mississippi in 1996 (NMFS, 1998).

### 7.3.3 Atlantic Croaker

The Atlantic croaker is an estuarine-dependent, demersal fish that is common throughout the Gulf of Mexico. It is usually found over mud and sandy/mud bottoms in coastal waters to depths of 120 meters (NOAA, 1985). The Atlantic croaker is subject to significant commercial and sport fisheries in the Gulf of Mexico. Major commercial harvesting areas are located between Mobile Bay, Alabama and Lake Calcasieu, Louisiana.

### 7.3.4 Spotted Seatrout

The spotted seatrout is a demersal, estuarine species that inhabits Gulf of Mexico waters up to 20 meters in depth and is often associated with sand flats, seagrass beds, salt marshes, and tidal pools of higher salinity (NOAA, 1985). They are carnivores at the top of the food chain in estuaries. The spotted seatrout supports valuable commercial and sport fisheries throughout the coastal Gulf of Mexico. In 1996, it was the first most common sport fish caught in Florida with nearly 3 million fish landed (NMFS, 1998). The commercial catch is sold to restaurants, fish markets, and wholesalers.

### 7.3.5 Sand Seatrout

The sand seatrout is a demersal fish found in the coastal and shelf waters of the Gulf of Mexico. It is one of the most abundant fish in estuaries and in the shelf waters of the Gulf, usually inhabiting sandy and muddy bottoms out to the edge of the continental shelf (NOAA, 1985). Commercial fishing for sand seatrout is concentrated along the coasts of Florida, Mississippi, and Louisiana. The sand seatrout is also fished recreationally throughout its range (NOAA, 1985). In 1996, the sand seatrout was the most common sport fish caught in Alabama and Mississippi and the fourth most common in Florida (NMFS, 1998).

### 7.3.6 Saltwater Catfish

Saltwater catfish in the Gulf of Mexico include sea catfish and gafftopsail catfish. They are opportunistic feeders that prefer sandy and organic substrate. Their diet includes sea grass, corals, sea cucumbers, gastropods, polychaetes, crustaceans, and human garbage (Muncy and Wingo, 1983). Commercially, the saltwater catfish are considered a nuisance, and even dangerous. Areas of abundance are purposefully avoided. They are a significant bycatch of menhaden purse seines. Saltwater catfish were the sixth most common sport fish caught in the eastern Gulf in 1996 (NMFS, 1998).

### 7.3.7 Pinfish

Pinfish are abundant throughout the coastal waters of the Gulf of Mexico. They inhabit rocky or vegetated marine bottoms, reefs, jetties, and mangrove swamps. Pinfish prey on crustaceans such as amphipods and shrimp. They are believed to have a significant impacts on epifaunal seagrass communities. Their predators include ladyfish, porpoise, spotted seatrout, alligator gar, and gulf flounder (Muncy, 1984b). Although pinfish have little value as food, there exists a significant baitfish market (Muncy, 1984b). In 1996 pinfish were the second most popular recreational fishery in Florida and the fifth most popular in Alabama (NMFS, 1998).

## 7.4 Deepwater Fisheries in the Gulf of Mexico

The following discussion of the deepwater fisheries of the Gulf of Mexico are taken from pp.270-272 in: *Deepwater Gulf of Mexico Environmental and Socioeconomic Data Search and Literature Synthesis, Volume 1: Narrative Report* (CSA, 2000).

***Deepwater Fisheries***

*Introduction*

*Commercial fisheries in the Gulf of Mexico are among the most productive in the world. Species such as menhaden; brown, white, and pink shrimp; oysters; blue crab; and red snapper drive the landings and dockside values. Gulf coastal states derive considerable revenues from regional commercial fisheries (Browder et al. 1991; O'Bannon 1999). In 1998, commercial fished lanclings in the U.S. Gulf of Mexico, which includes western Florida, Alabama, Mississippi, Louisiana, and Texas, exceeded 1.5 billion pounds*

*and were worth over $700 million (O'Bannon 1999). Most of these landings were generated from fish and invertebrate species caught in estuarine, coastal, and shelf waters. Species caught in the deepwater (>200 m) region contribute minimally to the overall regional landings, but are still very important to a smaller sector of the commercial fishing population (NMFS 1999a).*

*Deepwater fisheries of the Gulf of Mexico have not been formally reviewed, but McIlwain (1999) briefly described the deepwater fisheries and fishery practices occurring in the De Soto Canyon region of the eastern Gulf of Mexico. He listed deepwater trawling, butterfish trawling, golden crab trapping, surface longlining, and bottom longlining as the major fishing endeavors of that area. Both butterfish trawling and golden crab trapping appear to be of minimal importance in the overall deepwater fishery (Josh Bennett, 2000, NMFS, Miami, FL, personal communication). Surface longlining, shrimp trawling, and bottom longlining are the most important deepwater fisheries in terms of pounds landed. All three of these methods were initially "discovered" through the exploratory fishing efforts of the Bureau of Commercial Fisheries, which began around 1950. Species sought by deepwater commercial fishers can be divided into tiered basic groups: epipelagic fishes, demersal fishes, and invertebrates.*

***Key Species***

*Epipelagic fishes found in the commercial catch include dolphin, sharks (mako, silky, and thresher), snake mackerels (escolar and oilfish), swordfish, tunas (bigeye, blackfin, bluefin, and yellowfin), and wahoo. These species are widespread in the oceanic waters of the Gulf, generally in the upper 200 m of the water column. Sharks, swordfish, and tunas are the most important fishery species and are currently managed as a unit (Highly Migratory Species) by the NMFS Office of Sustainable Fisheries, Highly Migratory Species Division (NMFS 1999a). As such, these species are covered by a management plan as mandated in the Magnuson Stevens Fishery Management Act of 1976. These same species are sought by offshore or bluewater fishers.*

*Demersal fishes caught in deepwater include groupers (snowy, Warsaw, and yellowedge), snappers (queen and silk), and tilefishes (blueline tilefish, Boldface tilefish, and tilefish). These are often referred to as reef fishes (i.e., GMFMC 198 I). However, this group of deeper dwelling fishes, particularly tilefishes and yellowedge grouper, may be found on level clayey bottoms in 80 to 450 m water depths rather than on reefs or hard bottom. Other deepwater snappers and groupers associate with hard bottom outcrops in water depths ranging from 80 to 600 m.*

*Deepwater invertebrates important to commercial fisheries in Gulf of Mexico are royal red shrimp and, to a much lesser extent, golden crab. Royal red shrimp occur over specific substrata in different areas of the Gulf: blue-black terrigenous silt and silty clay off the Mississippi Delta and calcareous mud off1he Dry Tortugas (Roe 1969; GMFMC 1996). Peak abundance of royal red shrimp in the Gulf of Mexico occurs in the depth range from 250 to 500 m (Roe 1969). Golden crab occur in a similar depth range as royal red shrimp but prefer hard bottom and outcroppings such as the Florida Escarpment (Lindberg and Lockhart 1993).*